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Claims

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1. An optical amplifier that amplifies signal light in a signal band in a fiber optic transmission system having at least first and second optically pumped signal light gain amplifying stages,

a tilt controller linked to a control unit ,

a optical monitor analyzing signal powers,

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wherein the amplified spontaneous emission of the optical amplifier is measured at two extreme wavelengths of the signal band to derive control signals for at least the tilt controller.

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2. An optical amplifier according claim 1 wherein the control signals are connected to a variable optical attenuator VOA.

3. An optical amplifier according claim 1 wherein the control signals are connected to a variable attenuation slope compensator VASC.

4. An optical amplifier according claim 1 wherein the first and the second gain stages are doped fiber amplifiers.

5. An optical amplifier according claim 1 wherein the first gain stage is a Raman amplifying stage and the second gain stage amplifier is a doped fiber amplifier.

6. An optical amplifier according claim 1 wherein the output signal of the amplifier is connected to a four-port tap coupler, where one port is linked to Bragg fiber gratings reflecting the extreme wavelengths of ASE noise and one port connected to a wavelength multiplexer separating the wavelengths for a measurement.

7. Communication system with improved amplification and amplifying tilt control comprising at least one optical amplifier according the previous claims.

8. Method for control tilt of a communication system comprising the step:

- Measuring at the output signals of the amplifiers two wavelengths at the extremities of the signal band out of the ASE noise signal,
- Analyzing the measured signals in an optical monitor and
- Feeding back the signals via a control unit at least to a tilt controller
- Adapting the tilt according the measured signals to compensate tilt of amplifier and the line.